

structions from those followed by the other competitors.

We have no desire to say any thing which may be injurious to the author of any one of the designs; our remarks are directed wholly to the system,—a system which leads to the expenditure of the time, talent, and money, of a large number of persons on a false expectation.

No. 13, the second design, has the entrance-front next the long side of the ground, and presents one long range of building, extending nearly the whole depth of the land, with the infirmary for males at one end and that for females at the other, or next the Stratford-road. The main building has a central corridor throughout its extent, open the whole height of the edifice, with balconies for approach to the upper stories, as in the Penitentiary Prison and the Clerkenwell House of Detention. The elevation is plain,—an ordinary street front, with cornice and window dressings; but the accommodation is ample, and the means of classification good. No. 12, the third premiated plan (by Mr. Taylor), is an artist-like design externally. The chapel and dining-room, one on either side, are made the prominent features of the front, and the main building, seen behind, has a campanile at each side.

We have left ourselves little space for further remark at present, beyond pointing out one of the designs, which unquestionably deserved to be included in the rewarded list: we allude to No. 10, the authors of which, we learn, are Messrs. Jayne and Young. It unites with the H form of plan, placed in the reverse way from No. 7, namely, with the entrance front next the long side of the ground, two radiating wings at each end extending to the confines of the land, and offering the means of very perfect classification. The style adopted is Elizabethan, and, in an artistical point of view, as well as regards plan, the design has great merit, and eminently deserved to be rewarded.

FIRST REPORT OF THE SANITARY COMMISSION.

IMPORTANT RESULTS.

At the moment of going in press we have been favoured with an early copy of the first report issued by the Sanitary Commission, and proceed to lay such extracts from it before our readers, as seem the most important. The necessity for immediate legislation in respect of the sewers of the metropolis, has expedited this report, and prevented attention, at present, to several material points of inquiry. The immediate result of the investigation is, the suppression of all the Metropolitan Commissions of Sewers, including those of Kent and Surrey,—but excepting the City Commission,—and the appointment of one smaller body of men, twenty-two in number, who are said to have given attention to sanitary matters. The report first treats of the prevention of cholera, but to this we cannot now refer. We proceed to those parts relating to drainage:—

"A primary objection raised under the sanitary inquiry to the system of drainage carried out in the metropolis was, that it retained and accumulated decomposing refuse in the sewers. Any system which does this effects the result which sewers were intended to prevent. In the evidence given before the Commissioners of Inquiry into the means of improving the health of towns, the means of remedy were pointed out and demonstrated. The chief means indicated were such alterations of the forms of house-drains and sewers as would increase the rate of flow of the sewer water and diminish the amount of deposit, and keep them clearer with the existing supplies of water; but it was also proved and urged, that for the perfect attainment of these objects, the command of artificial supplies of water was requisite. It may be asserted that the principles of these

remedies were demonstrated with a degree of clearness which admits of no misapprehension by well-informed minds earnestly directed to the attainment of the object. One of our first topics of inquiry was how far these explications of evils and principles of remedies, which had now been made known several years, had influenced the subsequent administration of the authorities charged with this class of public works in the several districts; and they found no result.

Evidence shows that drains should be smaller:—

"In general, the flow of water in the collateral sewers of branch lines of street, even where all the houses drain into them, are mere dribbles, and rarely rise above the invert of the wide bottomed sewers as at present constructed, even in streets where all the houses drain into the sewers. The following are the consequences which take place in various degrees in nearly all the collateral sewers of every form of construction, though the best is the egg-shaped form.

The flow of water, being impeded by the extent to which it is spread, is retarded, and a deposit is created; this deposit becomes indurated to a degree which prevents its being removed by the flow of water occurring in ordinary rainfalls, and is not often considerably affected by any other than the extraordinary storms which occur in intervals of several years.

The accumulations continue, and, during the process, the deposit from the house drains spreads on the sides, and decomposition ensues.

The accumulations in the sewers, as well as in the large house drains which communicate with them, are exposed to the action of much air, usually at such a temperature as greatly to facilitate decomposition.

The accumulations increase until the house drains are entirely stopped up, when the deposit in the sewers is usually removed by the offensive process of hand labour and cartage, leaving the deposit in the house drains untouched."

The report is severe on those who advocate large drains, in the face of contrary evidence:—

"One of the surveyors of the Surrey and Kent sewers, Mr. Joseph Gwilt, the author of an 'Encyclopædia of Architecture,' prescribes a size of drain of five square feet for a moderate-sized mansion, to enable a man to get at it to cleanse it from time to time. The Metropolitan Building Act prescribes that the least size of house-drains shall be 9 inches; the hypothesis being that, inasmuch as even these drains accumulate deposit, drains still larger are desirable.

Now, it is proved, that whilst house-drains of such sizes and construction as have been enforced by the Commissioners of Sewers accumulate deposit, drains of a much smaller size keep perfectly clear. Thus, whilst a 12-inch drain, which is required by the Kent and Surrey, and the Tower Hamlets, and the City Commissioners, accumulates deposit and generates noxious gases, a tubular earthenware drain, of nine times less capacity, or of 4 inches in diameter, or, proportional to the house, of from 3 to 6 inches, keeps perfectly clear. Even 3-inch drains convey away the refuse from middle-sized houses, and keep perfectly clear, whilst the larger permeable brick drains, which are usually charged three times the price, are choked up."

On the subject of house-drains, Mr. Phillips, the surveyor of the Westminster district, was asked:—

"Have you, in passing along the sewers, ascertained which way the currents of air were flowing, either into or out of the sewers?—In going along the sewers I have been always anxious to ascertain that fact. The light which I had in my hand I have placed immediately by the side of and into the house-drains, and I found, almost invariably, the flares carried into the mouths of the drains, so that there must have been direct currents from the sewers through the house-drains, and so into and through the houses themselves. I rarely met with any instance, where there was not a current from the sewer into the house-drain, and also from the sewer through a large number of the gully-drains into the street. Of course, some gullies have a down draught.

Then it is to be presumed that your experience justifies the general description given of the existing sewers in the Sanitary Report

of 1849, as retorts with necks carried into the houses for the conveyance of the gases there?—Yes, unfortunately, such I have found to be the case. The sewers are, in a very great degree, ventilated by the house-drains, which are badly trapped. It was in consequence of finding that to be the fact, by repeated observations and experiments in the sewers, that I was induced in lay before the court their real and absolute state, in order that no grievous an evil might be remedied without delay.

What was done upon your representations?—I cannot say that any steps were taken to remedy the defects; but I can say that it was considered that I was too bold, and that I said too much."

He afterwards shews that efficient drainage may be had for one-sixth of present cost:—

"Will you contrast the expense of the general drainage of streets, courts, and alleys, with the expense at which an improved drainage might be carried out?—I have already stated that the cost of a first-class sewer of the upright-sided form was about 22s. 6d. per foot run; that the present first-class egg-shaped form ordinarily costs about 14s. 2d. per foot run; and that I think the expense, under an entirely different system, with constant supplies of water to keep the sewers clean, might still be further reduced to about 7s. per foot run for the larger class of branch sewers, and to about 6s. 4d., 5s. 7d., 5s. 3d., 4s. 6d., and 4s. per foot run for the smaller ones."

The Commissioners remark:—"When it is considered that, in the court of sewers for the chief district, that for Westminster for example, these reductions and amendments of the house-drains, and other proposed amendments, have been met by the positive opposition of a large minority of commissioners, which is sometimes a majority, whose proceedings are described by the witnesses and displayed in their acts,—when the important results of the regulated application of supplies of water, to which attention was directed by the Commissioners of Inquiry, have been passed over without any practical notice, not only in this one commission but in every other;—it will be perceived how slight are the grounds of any expectation of the principle of action in question being followed out, and of being accurately determined and applied by these authorities as at present constituted."

The surveyor having stated that without a plan and system of levels the arrangement of the sewers must be guess-work, was asked,—"Have you ever represented this opinion to the commissioners?—Yes, repeatedly; both in court, and to individual commissioners out of court. About two years ago, I wrote an article in THE BUILDER, in my own name, in which I urged that no more work should be done until the actual condition of the sewers was ascertained, and a scheme laid down for their entire improvement. This is an extract from that article:—

"It should be distinctly understood that no more work should be commenced until the sizes and falls of all the sewers have been determined on, and re-arranged according to a regularly graduated scale; and I have no hesitation in saying, that until either this be set about and done, or they be entirely rebuilt, there are very many lines which will never be any other than elongated and filthy reservoirs or cesspools, the matter in which will be continually contaminating the atmosphere with its deleterious products. These great evils require immediate reparation, which should not be done piecemeal, but upon a well-organised system of arrangement; and if the matter be taken up, as I trust it will, the cost of putting the whole of the badly-formed sewers into a state of comparative efficiency could be ascertained without great difficulty." The paper containing that article was sent to the court by the editor of THE BUILDER."

In conclusion, the Commissioners find,—

"That it is expedient that a commission for the entire drainage of the whole of the metropolis should be appointed, with a special view to such measures, and with aid to carry them out."

"That the execution, by the district courts of commissioners, of large works of drainage or sewerage, without reference to any general plan or survey, involves great risk of erroneous and imperfect works, and waste of the rates

* Of the late Westminster Commission only three members, we believe, are re-appointed, namely, Mr. Bidwell, Mr. P. Bryn, and Mr. Lewis. The duties of the new Commission will be very heavy.